Oklahoma Department of Environmental Quality
Coal Combustion Residuals Permit Program Application
Response to EPA request for Clarification
10/18/17

ODEQ Clarifications

- The EPA CCR website lists 5 facilities in Oklahoma that have been identified under this rule. Are there any other facilities ODEQ is currently aware of that would be impacted by the Oklahoma permitting program?

Power Plant Name	City	Company Owner Name
Sooner	Red Rock	Oklahoma Gas & Electric Company
Hugo	Fort Towson	Western Farmers Electric Coop., Inc.
Muskogee	Fort Gibson	Oklahoma Gas & Electric Company
Northeastern	Oologah	American Electric Power (AEP)
GRDA	Chouteau	Grand River Dam Authority (GRDA)

One additional facility should be added to the list. Big Fork Ranch, located approximately ten miles southeast of Ponca City, Oklahoma, lat/long 36.5734, -97.0147. The operating company is called Evans and Associates. The Big Fork Ranch was formerly regulated by the Oklahoma Department of Mines. On November 1, 2016, Title 45 Oklahoma Statute § 940 was amended causing Big Fork Ranch to fall under jurisdiction of DEQ. The Big Fork Ranch is currently operating under a consent order with DEQ and has filed a permit application for the existing CCR landfill on site. The application is currently in review at DEQ. Their website is: http://evansandassociatesconstructioncompany.com/

252:517-1-3 Definitions

- "Representative Sample" – deleted "*See EPA publication SW–846, Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods, Chapter 9 (available at http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm) for a discussion and examples of representative samples."* Will ODEQ being using other test methods?

DEQ is not proposing other test methods. DEQ did not want to include references to EPA documents in State rules, especially a website address that may be subject to change.

252:517-5-2 Wetlands

- Removed 257.61(2)(iv) – "*A violation of any requirement under the Marine Protection Research and Sanctuaries Act or 1972 for the protection of a marine sanctuary*". EPA assumes ODEQ is not planning to ocean dump the CCR material so the MPRSA reference would not apply. Is that correct?

  Correct. DEQ has no plans to ocean dump CCR material.

252:517 Subchapter 9. Groundwater Monitoring/Corrective Action

- 252:517-9-2(e) Groundwater monitoring systems – OK removed 257.91(e) from federal rule. The OK language references 517-7-3 which is a section on *Compliance with OWRB rules*. Why does ODEQ believe the OWRB rules are as protective as the federal rule?

The Oklahoma Water Resources Board (OWRB) is the state agency in Oklahoma with authority to regulate water well drilling and construction. Based on comparison of the two, DEQ considers OWRB rules to be at least as protective as the federal rules in regard to monitoring well construction.

Federal § 257.91(e) requires monitoring wells be cased in a manner that maintains the integrity of the monitoring well borehole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

OWRB Section 785:35-7-2 **Standards for construction of monitoring wells and geotechnical borings,** requires the following:

(a) **General requirements.**
(1) **Applicability of minimum standards.** The minimum standards set forth herein apply to all monitoring wells, including site assessment observation wells and unsaturated zone monitoring wells, and geotechnical borings, whether constructed by a person having a valid license or by any other person.
(2) **Construction.** Monitoring wells and geotechnical borings shall be constructed in such a manner as to prevent waste and contamination of groundwater by pollution material entering the ground around the casing or boring, by entering the wells or boring, or by entering the fresh groundwater from pollution sources below the ground.
(A) **Drilling equipment.** Drilling equipment shall be decontaminated if contamination is encountered in the well or borehole.
(B) **Drilling procedures.** Drilling procedures shall be carried out in such a manner that will prevent or minimize contamination.
(C) **Construction material.** All construction material shall be in a condition that will prevent or minimize contamination.
(3) **Proper maintenance and plugging.** The driller and the well owner are charged with the responsibility of taking whatever steps are reasonable in a particular situation to guard against waste and contamination of the groundwater resources and to see that unused wells and boring are properly plugged.
(4) **Other regulations.** These rules are minimum standards and other laws and regulations which are more stringent may be applicable.
(b) **Minimum standards for construction of monitoring wells.**
(1) **Diameter of borehole.**
(A) The diameter of boreholes for monitoring wells, with the exception of boreholes for unsaturated zone monitoring wells, shall be at least three inches greater than the nominal diameter of the well casing and screen for the entire length of the casing.
(B) The diameter of boreholes for unsaturated zone monitoring wells shall be at least one and one-half (1 1/2") inches greater than the nominal diameter of the well casing for the entire length of the casing.
(2) **Casing selection and casing joints.**
(A) All wells shall be cased. Casing material shall be selected according to groundwater geochemistry, anticipated lifetime of monitoring program, well depth, parameters to be monitored and other site specific considerations.

(B) When PVC casing is used, the casing shall meet or exceed the standard dimension ratio (SDR) of twenty-one (21).
(C) The minimum diameter for monitoring well casing shall be a nominal two (2) inches, with the exception of casing for unsaturated zone monitoring wells. The minimum diameter for unsaturated zone monitoring well casing shall be a nominal one-half inch. Methane gas probes at solid waste management sites shall be exempt from minimum casing diameter requirements.
(D) The casing shall be connected by flush threaded joints or have the ability to be connected by another mechanical method that does not introduce pollutants into the well. Glued joint casing shall not be used when monitoring organics.
(E) The casing joints shall be made water tight by a method that does not introduce pollutants into the well (e.g. wrapping the casing joint with Teflon tape or placing an o-ring or gasket in the joint).
(3) **Bottom cap required.** A bottom cap shall be installed on each monitoring well.
(4) **Screen selection and setting.**
(A) All wells shall be screened and screen material shall be selected according to groundwater geochemistry, anticipated lifetime of monitoring program, well depth, parameters to be monitored and other site specific considerations, provided that the minimum screen depth shall be two and one-half feet (2 ½') below the land surface, provided further that the minimum screen depth shall be two feet (2') below land surface for tank pit monitoring wells at tank locations regulated by the Oklahoma Corporation Commission.
(B) The well screen shall be factory wire wrapped or factory slotted. Well screens shall not be field slotted.
(C) Slot size shall be selected to prevent or minimize infiltration of the filter pack through the well screen.
(D) Screens shall be of sufficient length to detect, monitor or otherwise describe the contaminant plume according to site specific conditions (e.g. seasonal water level fluctuations). Screen length shall be determined so that commingling of fluids from separate groundwater zones does not occur.
(E) Screen joints shall be placed in the well in such a manner as not to interfere with the accurate investigation of the groundwater quality.
(5) **Filter pack selection and placement.**
(A) All wells shall be have a filter pack and aggregates used for filter pack shall consist of uncontaminated quartz sand, silica or other material that will not affect the groundwater quality.
(B) Filter pack shall be selected to prevent or minimize infiltration of the geologic formation (e.g. fines migration or sand buildup).
(C) Filter pack shall extend two (2) feet above the top of the screen unless such extension would allow vertical communication of pollution through the filter pack.
(D) Filter pack shall be placed in the annulus of the well in such a manner that bridging of the filter pack material will not occur.
(E) When water or vapor levels being monitored are encountered within five (5) feet of the land surface, the filter pack shall extend a minimum of 0.5 feet above the top of the screen.
(6) **Sealing requirements.** Requirements for proper filter pack sealing, annular sealing and surface sealing for monitoring wells shall be as follows:
(A) **Sealing material.** All sealing materials shall be compatible with ambient geological, hydrogeological and climatic conditions, as well as any man-induced conditions anticipated to occur during the life of the monitoring well. Any cement used as a sealant shall be equivalent to or have the same properties as ASTM C-150 cement types I-V (commonly known as Portland cement).
(B) **Filter pack seal.** A minimum of two (2) feet of sodium bentonite pellets, chips or granules of no less than 0.25 inches and no more than 0.75 inches in size shall be placed immediately over the filter pack in each site assessment observation well or monitoring well and properly hydrated.
(C) **Annular seal.** The annular space above the filter pack seal shall be filled with a cement grout, bentonite grout, bentonite chips or a cement/bentonite grout mixture to within two (2) feet of the surface. The cement grout shall have a mix ratio of one 94 pound sack of cement to a maximum of six U.S. gallons of water. The cement and water must be mixed to the proper consistency as recommended by the cement manufacturer before the mixture is installed around the casing. A maximum of twenty percent (20%) bentonite by dry weight may be added to the cement grout to form the cement/bentonite grout mixture. The bentonite shall be prehydrated to the manufacturer's recommended

consistency. The bentonite grout shall be a high solids bentonite grout with at least twenty percent (20%) bentonite by dry weight. The bentonite shall be mixed according to the manufacturer's recommended consistency.

(D) **Surface seal.** A concrete or cement grout surface seal shall be placed around the casing immediately above the annular seal from a depth of two (2) feet to land surface.

(E) **Tremie requirements for grout.** When the placement of grout will exceed twenty (20) feet, the grout shall be placed in the annulus of the well through a tremie pipe and filled or pumped from the bottom upward.

(F) **Multiple cased or screened wells.** No adjacent or collinear casings in the same borehole shall be allowed. No multiple screened intervals in the same casing shall be allowed. Wells shall be drilled with sufficient distances between them so as to prevent the commingling of aquifer zones.

(G) **Special annular, filter pack, and surface seal conditions.** When water or vapor levels being monitored are encountered within five (5) feet of the land surface, the required depths set forth in C and D above for the filter pack and annular seals shall be reduced to fill the annular space from the top of the filter pack materials to the bottom of the cement surface seal, provided that the minimum screen depth shall be two and one-half feet (2 ½') below the land surface, provided further that the minimum screen depth shall be two feet (2') below land surface for tank pit monitoring wells at tank locations regulated by the Oklahoma Corporation Commission. The surface seal shall extend a minimum of one (1) foot below land surface.

(7) **Surface pad requirements.**

(A) A concrete or cement surface pad shall be installed around the casing at the surface with minimum dimensions of 3 feet in diameter by 3.5 inches thick.

(B) The surface pad shall be sloped so to insure that all surface water flows away from the well.

(C) The surface pad is not required if the well is completed in competent concrete or asphalt paving, or if the well is an unsaturated zone monitoring well or a site assessment well that is located in a proposed solid waste disposal site and neither is used for a period exceeding one (1) year.

(8) **Top cap requirements.**

(A) A threaded or flange cap or compression seal shall be installed upon completion of the well to prevent unauthorized use of the well (e.g. tampering with the well or the entrance of foreign material into the well).

(B) The cap or seal shall have the capability of being locked if the well is flush mounted and the well protector is not capable of being locked.

(9) **Monitoring well and site assessment observation well protection.** Protection shall be provided for the casing of monitoring wells or site assessment observation wells by either of the following methods:

(A) An aluminum or steel surface casing shall be set a minimum of 12 inches through the cement or concrete surface pad and shall extend a minimum of 24 inches above the pad or ground. The top of the protective casing shall be fitted with a locking cap and shall be marked to clearly identify the well as a monitoring well or site assessment observation well; or

(B) If flush mounting is required, then the well shall be completed with a well protector that is capable of supporting vehicular traffic, provided that flush mounting of the casing of monitoring wells installed at concentrated animal feeding operations after July 1, 2006, shall be prohibited. The well protector shall be raised a minimum of one-half (1/2) inch above the surface pad or paving and shall be clearly marked to identify the well as a monitoring well or site assessment observation well. The surface seal shall be sloped so that surface water flows away from the well protector and the bond between the well protector and the removable cover shall be made watertight.

(10) **Direct Push (DP) Monitoring Wells and Piezometers.**

(A) Monitoring wells and piezometers that are installed using direct push (DP) technology shall comply with the applicable standards in 785:35-7-2 for reporting, casing, screening, filter pack, filter pack placement, filter pack seal, development, decontamination, surface seal, cleaning, protection, marking, and completion.

(B) DP monitoring wells and piezometers shall be authorized as applicable at the discretion of the state or federal agency having jurisdiction over a specific site.

(C) DP monitoring wells and piezometers shall also comply with the following additional standards:

(i) DP monitoring wells and piezometers shall only be authorized for a one (1) year term; and

(ii) The outside diameter of the borehole shall be at least three inches (3") greater than the nominal diameter of the well casing and screen; and

(iii) Granular bentonite shall not be used in the sealed interval below the static water level; and

(iv) Casing diameter shall be a minimum one inch (1") and shall meet or exceed schedule 40 standards; and
(v) Wells and piezometers shall not be constructed through more than one water bearing formation and shall not be greater than 50 feet in depth unless a variance is obtained.

- 517-9-4(g)(5) – In this paragraph, OK references (f) of this section. The reference seems incorrect. The federal rule (257.93(f)(5)) references (g) which references a paragraph describing performance standards. It seems ODEQ should reference (h) of their rules to reference the correct paragraph?

DEQ agrees—this appears to be a typographical error. The reference to (h) should be used in place of (f). DEQ has identified a handful on non-substantive "scrivener" errors within the text of Chapter 517 and will be presenting revised rules to correct these to the Solid Waste Management Advisory Council (SWMAC) for consideration in January 2018.

252:517 Subchapter 11. Design criteria

- 252:517-11-1(e)(1) - Federal language 257.70(e) *"…(or, if applicable, alternative composite liner) and the leachate collection and removal system meets the requirements of this section*

  OK language – *"…(or, if applicable , alternative composite liner) system meets the requirements of this Section, and submit the certification along the design plans to DEQ for approval*"

  The ODEQ language removes "leachate collection" from their rules. Will that component be part of the design plan ODEQ approves?

It appears leachate was inadvertently deleted. The leachate collection system will be reviewed as part of any design. For clarity, DEQ will propose revised text for rulemaking at the January 2018 SWMAC that includes leachate collection.

252:517 Subchapter 19 Record Keeping, Notification, and Posting of Information to the Internet

- 252:517-19-2

  OK removed section (b) of the federal rule

  Federal language 257.106(b) - If any CCR unit is located in its entirety within Indian Country, the notifications of this section must be sent to the appropriate Tribal authority. If any CCR unit is located in part within Indian Country, the notifications of this section must be sent both to the appropriate State Director and Tribal authority.

  ODEQ has stated in earlier conversations that it will not be permitting CCR facilities in Indian Country. If a facility is partially in Indian County how will ODEQ respond? Will it be a joint permit from EPA that addresses the part in Indian Country?

None of the included terms (Indian Country, Indian Lands, Indian Tribe) are used within the Chapter 517 rules. As with all other solid waste related issues, DEQ will perform an internal jurisdictional determination. If the unit is proposed on land held in Trust by the United States for the benefit of an

Indian Tribe, the unit/land is outside DEQ jurisdiction and DEQ will only regulate the unit with the request and consent of the tribe or BIA. All other types of properties will be subject to the proposed rules and regulated by DEQ. In the unlikely event that a proposed CCR unit is located in part on land outside DEQ jurisdiction and part within, DEQ would aim to work cooperatively with EPA to determine appropriate jurisdictional oversight.